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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/520,769	07/13/2005	Gerhard Hoefle	930008-2194	5104

7590 12/07/2007
Ronald R Santucci
Frommer Lawrence & Haug
745 Fifth Avenue
New York, NY 10151

EXAMINER

KOSACK, JOSEPH R

ART UNIT	PAPER NUMBER
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1626

MAIL DATE	DELIVERY MODE
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12/07/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/520,769	Applicant(s) HOEFLE ET AL.	
	Examiner Joseph Kosack	Art Unit 1626	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 02 October 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1, 3-11, 13 and 14 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 13 and 14 is/are allowed.
- 6) ☒ Claim(s) 1 and 3-11 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claims 1, 3-11, 13, and 14 are pending in the instant application.

Amendments

The amendment filed on October 2, 2007 has been acknowledged and has been entered into the application file.

Previous Claim Objections

Claims 13 and 14 were previously objected to for containing elected and non-elected subject matter. The non-elected subject matter has been cancelled, and the objection is withdrawn.

Previous Claim Rejections - 35 USC § 101 & 112

Claim 14 was previously rejected under 35 U.S.C. 101 and 112, second paragraph because the claimed recitation of a use, without setting forth any steps involved in the process, results in an improper definition of a process, i.e., results in a claim which is not a proper process claim under 35 U.S.C. 101. The claim has been amended to be a process claim, and the rejections are withdrawn.

Previous Claim Rejections - 35 USC § 103

Claims 1 and 3-12 were rejected in the previous action under 35 U.S.C. 103(a) as being obvious over Nicolaou et al. (*Angew. Chem. Int. Ed.* 1998, 2014-2045) in view of Patani et al. (*Chem. Rev.* 1996, 3147-3176).

Applicant has traversed the rejection on the grounds that since the C5 ketone is required for the activity according to Nicolaou et al., a greater difference in activity would be expected than what is shown by Exhibit A.

Firstly, it is acknowledged that the data presented in Exhibit A is not submitted as part of a declaration under 37 CFR 1.132. Even so, the comparison of Nicolaou stating that the C5 ketone when reduced or removed that the activity is lost does not line up with replacing the C5 ketone with a SO group. As such, one of skill in the art would not necessarily make the conclusion that there must be a major change in the biological activity of the molecule. Even with the hybridization change, the change from carbonyl to sulfoxide or sulfone has been increasingly used as non-classical bioisosteres. Page 3167, second column of Patani. Therefore, the rejection is maintained for all claims except cancelled claim 12.

Previous Double Patenting Rejections

Claims 1 and 3-12 were provisionally rejected in the previous action on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 12 and 22 of copending Application No. 10/535,474, now published as USPN 20060128966 A1 in view of Patani et al. (*Chem. Rev.* 1996, 3147-3176).

It is noted that Applicant is considering a terminal disclaimer once the claims become otherwise allowable. As there is a maintained rejection and no terminal disclaimer yet on file. The provisional rejection is maintained with the exception of claim 12 which is withdrawn as that claim is cancelled. Applicant is reminded that since the instant case is the senior case, a terminal disclaimer may not be needed once all other rejections are withdrawn.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

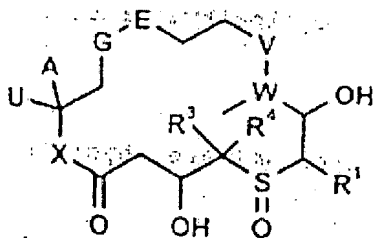
The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1 and 3-11 rejected under 35 U.S.C. 103(a) as being obvious over Nicolaou et al. (*Angew. Chem. Int. Ed.* 1998, 2014-2045) in view of Patani et al. (*Chem. Rev.* 1996, 3147-3176).

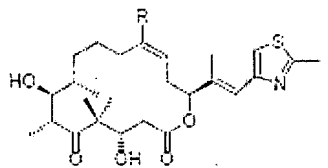
The instant application is drawn to compounds of the formula:



with substitutions as defined along with a method of treating cancer with the compounds.

Determination of the scope and content of the prior art (MPEP §2141.01)

Nicolaou et al. teach Epothilone D which as the structure of



where R is methyl. Nicolaou et al. also teach the use of epothilones to treat cancer by killing tumor cells through a mechanism similar to paclitaxel. See page 2016.

Ascertainment of the difference between the prior art and the claims (MPEP §2141.02)

Nicolaou et al. do not teach a SO in place of the carbonyl next to the gem-dimethyl of the epothilone ring.

Finding of prima facie obviousness--rational and motivation (MPEP §2142-2413)

Patani et al. teach that carbonyl can be replaced by SO and that the change has been used increasingly in the pharmaceutical art. See page 3167, Figure 67, Table 39, and the last paragraph of column 1 to the end of the first full paragraph of column 2.

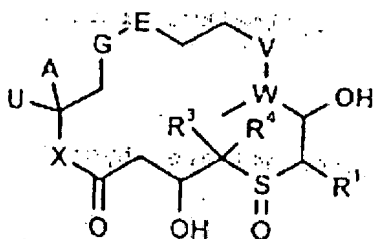
Therefore, it would have been obvious to one of ordinary skill in the art at the time of the claimed invention was made to follow the synthetic scheme of Nicolaou et al. with the replacement suggested by Patani et al. to make the claimed invention. The motivation to do so is provided by Nicolaou et al. Nicolaou et al. teach the use of the compounds as killers of tumor cells. See page 2016.

Thus, the claimed invention as a whole was *prima facie* obviousness over the combined teachings of the prior art.

Double Patenting

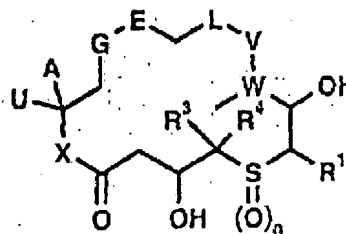
Claims 1 and 3-11 provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 12 and 22 of copending Application No. 10/535,474, now published as USPN 20060128966 A1 in view of Patani et al. (*Chem. Rev.* 1996, 3147-3176).

The instant application is drawn to compounds of the formula:



with substitutions as defined along with a method of treating cancer with the compounds.

Determination of the scope and content of the prior art (MPEP §2141.01)



'474 teaches compounds of the formula

with

substitutions as defined.

Ascertainment of the difference between the prior art and the claims (MPEP §2141.02)

'474 does not teach a SO in place of the S or SO₂ group in the compound.

Finding of prima facie obviousness--rational and motivation (MPEP §2142-2413)

Patani et al. teach that carbonyl can be replaced by S, SO, or SO₂ if the position is not essential to the function of the molecule. See page 3167, Figure 67, Table 39, and the last paragraph of column 1.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the claimed invention was made to follow the synthetic scheme of '474 with the replacement suggested by Patani et al. to make the claimed invention. The motivation to do so is provided by '474. '474 teaches the use of the compounds to treat cancer. See claim 11.

Thus, the claimed invention as a whole was *prima facie* obviousness over the combined teachings of the prior art.

This is a provisional obviousness-type double patenting rejection.

Conclusion

Claims 1 and 3-11 are rejected. Claims 13 and 14 are currently allowable over the prior art.

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Joseph Kosack whose telephone number is (571)-272-5575. The examiner can normally be reached on M-F 6:30 A.M. until 4:00 P.M. The examiner has every other Friday off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Joseph McKane can be reached on (571)-272-0699. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should

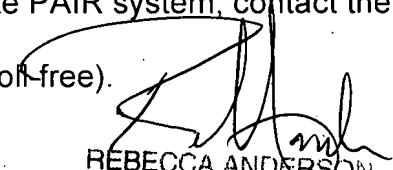
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you have questions on access to the Private PAIR system, contact the Electronic
Business Center (EBC) at 866-217-9197 (toll-free).



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